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ABSTRACT

This paper outlines an approach to the study of internal state words and their use in conversation. The first section of the paper deals with the basic categories of words involved, discussing and illustrating theoretical and practical problems in defining critical components and boundaries for the class of internal state words as a whole and then for the four basic subclasses: cognitive, perceptual, affective, and intentions and desires. The second section of the paper treats two categories of usage: the semantic/pragmatic distinction, which relates to whether the lexical meaning of an internal state word contributes directly, indirectly, or not at all to the intended meaning of the utterance in which it occurs; and reflections, which relates to uses of internal state words that express or explicitly call for a person's reflection on his or her own internal state. (FL)

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Technical Report No. 146

THEORETICAL ISSUES IN THE INVESTIGATION OF WORDS OF INTERNAL REPORT

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Abstract

This paper outlines an approach to the investigation of internal state words and their use in conversation. First, the limits of this class and its four component subclasses--Cognitive, Affective, Perceptual, and Intentions and Desires--are defined. Theoretical problems in classifying words into these categories are discussed; one major problem is determining which component(s) of a complex word-meaning are to be used as the basis of classification.

Second, two major categories for describing the use of internal state words are proposed. The Semantic-Pragmatic distinction relates to how the lexical meaning of an internal state word contributes to the intended meaning of the utterance in which it occurs--whether directly, indirectly, or not at all. Semantic uses of internal state words are literal; that is, the lexical meaning of the internal state word contributes directly to the intended meaning of the utterance, as in John knows the answer. Some pragmatic uses of internal state words are almost empty or meaningless; for example, conversational devices and mannerisms like you know. In other pragmatic uses, the lexical meaning of the internal state word contributes indirectly to the meaning of the utterance via some conversational implicature or convention. In this category are indirect requests and suggestions, such as Do you want to take out the garbage, please? and hedges such as He's in his office, I think.

Reflections are uses of internal state words to express awareness on the part of the speaker of his/her own current internal state, or to explicitly call for such awareness on the part of the addressee. Criteria for identifying reflections in natural conversation are given.

Semantic uses of internal state words are those uses of internal state words which communicate about, and hence constitute, metacognition. Reflections are expressions of, or explicit attempts to elicit, metacognitive experiences. These two categories of use, and also the category of internal state words and its four subclasses, constitute valuable tools for studying cognitive and conceptual skills that are clearly of significance to child development and education.

Theoretical Issues in the Investigation of Words of Internal Report

INTRODUCTION

In this paper we discuss in detail some of the theoretical issues related to the investigation of words of internal report, or, as we shall henceforth refer to them, internal state words. The categories presented are also intended to provide a detailed and explicit basis for the quantitative analysis of internal state word use in naturalistic data.

The present research is an outgrowth of the work reported in Gearhart and Hall (1979). In that paper, the authors presented an outline of procedures for coding internal state words, that is, for identifying instances of internal state words in naturalistic data and categorizing certain aspects of their use and function in the context of the discourse.

The motivation for investigating words of internal state has been discussed in some detail in Gearhart and Hall (1979) and elsewhere (cf. Wellman & Johnson, 1979). To recap briefly, it is based on the following hypotheses: (1) that the vocabulary in the internal state domain reflects to a large extent the repertory of concepts in this area; (2) that certain types of internal state word usage will correlate with skill in metacognitive processes; (3) that therefore the frequency of certain types of internal state word usage and the size of the internal state word vocabulary will correlate with the degree of readiness for, and success in, school;

and (4) that situational variation exists in the function and use of internal state words.

Such hypotheses give a two-fold motivation for the study of internal state word use: First, to test these hypotheses in some empirical way, it is necessary to have accurate and insightful methods of designating internal state word usage. Second, to the extent that the hypotheses are true, the study of internal state word use will be of significance to both education and psychology.

The procedures for investigating internal state words suggested in Gearhart and Hall (1979) have been refined in substantial ways by applying them to large amounts of natural conversation from the corpus of data described in Hall (1978). Among the refinements are the following: Criteria for membership in the category "internal state words" have been sharpened, and a new major subclass ("Intentions and Desires," covering words such as want, desire, decide, intend, and choose) has been included. Comprehensive lists of internal state words, resulting from the application of these criteria to vocabulary lists based on almost 300 hours of recorded conversation, are given. Although these lists cannot be considered exhaustive, they do cover the overwhelming majority of internal state words occurring in the normal conversation of persons from diverse social and ethnic backgrounds. The lists include idioms and other multiple-word lexical units relating to internal states which occur in the corpus of data.

The categories for investigating subclasses and differences in the usage of internal state words have also been expanded and refined, and will be presented here in detail, illustrated with examples from natural conversation.

In the first section of this paper we will deal with the basic categories of words involved, discussing and illustrating theoretical and practical problems in defining criterial components and boundaries for the class of internal state words as a whole, and then for the four basic subclasses: (1) Cognitive, (2) Perceptual, (3) Affective, and (4) Intentions and Desires. In the second section we will treat categories of usage, first the Semantic/Pragmatic distinction, and second, Reflections, that is, uses of internal state words that express or explicitly call for a person's reflection on his/her own internal state.

IDENTIFYING INTERNAL STATE WORDS

Defining the Category as a Whole

The Overall Class: Prototypical Members

The first step in our investigation will be to establish criteria for identifying bona fide internal state words, that is, words which by virtue of their lexical meanings are concerned with internal processes and states.[1]

These words map most readily onto the domain of metacognitive processes;[2] while the use of any internal state word is not necessarily associated with

any sort of metacognitive processes, internal state words are often used to express--perhaps even to organize--metacognitive activities.

The nature and extent of the class we are considering is to a large degree intuitively obvious. The class of internal state words includes words about cognition (e.g. think, know, believe, remember, figure out), about emotions (e.g., fear, angry, sad, happy), about perceptions--both the five senses (see, hear, etc.) and the more "internal" senses (e.g. dizzy, thirsty, ache)--about desires (want, desire) and intentions, choices, and decisions.

Problems in Classification

The overwhelming majority of internal state words in everyday language use will be clear-cut cases of such words.[3] But even though a few prototypical internal state words form the bulk of the internal state content of everyday conversation, there are several reasons why more precise criteria to define this class are needed.

The first is that no matter how clear the prototypical members of a category may be, there will inevitably be borderline cases for which it will be difficult to decide whether or not a word actually belongs to the group in question. Especially if one is interested in measuring the size of internal state vocabulary used by an individual or group, it is important to have consistent and non-arbitrary criteria for defining the boundaries of this class. We will return shortly to a detailed discussion of some

of the problems and issues that arise in trying to define the limits of the set of internal state words.

The second reason has to do with the imprecision of the word word. The lexical units of a language (which is what we are really interested in) can be different from "words" in two ways: First, the same "word" can represent different lexical units; that is, it can occur with several distinct and unrelated meanings. Second, a lexical unit may consist of more than one word, as in the case of idioms.

For an example of the first case, consider the word see. It normally has a meaning that could be glossed "to perceive visually," which belongs to the Perceptual subcategory of internal state words. However, in a sentence like He went to see his grandmother, the meaning of see is most likely (depending on the context) a different one, which might be glossed "visit," and is not an internal state meaning at all.

We are interested in identifying occurrences of lexical units with internal state meanings; therefore, we would count the see of He saw someone leave the building as an instance of an internal state word, but not the see of He went to see his grandmother.[4] Our investigation of internal state words will cover multiple-word units, for example idioms, as well as single words. (We will continue for simplicity's sake to talk about internal state "words," keeping in mind this qualification.) The following list illustrates (but does not exhaust) the kinds of idioms of internal state one may find in everyday language:

(1) pay attention to
big on (= like)
keen on (= like)
figure out
have (half) a mind to
change one's mind
make a mental note of
be dying to
be first in someone's heart

While such idioms and phrases are relatively infrequent compared to the more common internal state words, it is still important to recognize them as a potentially significant part of the lexical resources of the language; indeed, one might underestimate the internal state vocabulary of an individual or group by not taking them into account.

The Role of Syntax in Defining the Category "Internal State Words"

Syntactic categories. There are some syntactic categories that will be typical of internal state words, but there are no syntactic criteria that will determine whether or not a word belongs in this class.

The majority of internal state words will be verbs with the experiencer (normally human) as the subject:

(2) I think that you should invite her.
John knows the answer.
He saw someone go into the building.
Did you hear something?
They felt sad.
I like chocolate.
I want to leave.
We decided to stay.

A large number--especially in the Affective category--are adjectives, again with the human experiencer as the subject of the sentence:

(3) He was angry
sad
astonished
delighted
aware of the problem

There are also a fair number of internal state words for which the human experiencer shows up as the object of the sentence:

(4) It bothered me.
It annoys him.
They surprised me.
It angers me just to think about it.
The whole thing upset me.

The frequency of the more common patterns--especially the ones where the human experiencer is the subject of the sentence--means that one has to be all the more careful not to miss internal state words that have different syntactic characteristics, and might therefore be easily overlooked. In addition to the case where the experiencer appears as the object (as in the above examples), there are also examples where the experiencer shows up as the object of a preposition--

(5) It finally dawned on me that . . .
It occurred to me that . . .

and sometimes cases where it doesn't show up overtly at all:

(6) It didn't click at first. (= I didn't understand immediately)

Abstract nouns. Some genuine internal state words are abstract nouns, which can occur in sentences not referring to a (specific) person's internal state at all. For example:

(7) It might be a good idea.
It's the thought that counts.
That would be a hard choice to make.
The decision will be left up to the appropriate committee.

Note that abstract nouns like this can also occur in phrases that amount to complex verbs of internal state:

(8) I came to a decision about it.
I have an idea about how to do it.
The thought occurred to me that we should act soon.
I've made the choice to stay here.

Note that choice can also mean alternative, which is not an internal state word, as in sentences such as:

(9) Here are the choices we have. (= here are the alternatives)

Fuzziness of Boundaries

To meet our first goal of identifying occurrences of internal state words, we must develop some semantic criteria for determining what counts as a member of this class, and what does not. We have already informally given some content to the notion "internal state" by listing some prototypical members of the basic subclasses, and in the next section of this paper we will discuss the content and limits of these subclasses in detail. At this point, though, we want to discuss some general problems in defining and limiting the class of internal state words as a whole.[5]

First of all, it has to be recognized that because of the nature of word meanings, it is not necessarily possible even in principle to establish a set of exhaustive and mutually exclusive categories for lexical meanings. There are at least two reasons for this: First, there is no guarantee that some boundaries in semantics, just like some boundaries in the physical world, will not be continuous rather than discrete. Second, even if a set

of exhaustive and mutually exclusive categories for semantic features could be established, the fact remains that word meanings can be quite complex, containing a number of semantic features. It is not always clear which feature among the semantic features associated with a word should be chosen as the basis of classification; there may be no absolute theoretical basis for making such a choice. One might choose to classify word meanings on the basis of the feature that is most salient, but this can be a matter of degree, and often depends on the context as much as on the nature or structure of the word-meaning itself.

We will discuss these types of problems in more detail, beginning with some areas where there seems to be some inherent fuzziness to the boundaries of the notion "internal state word."

The notion "internal state." The first problem has to do with the boundaries of the notion "internal state"; that is, which states, processes, and experiences can be considered "internal" (i.e. "mental" or "psychological") and which cannot.

The subclasses Cognitive (e.g. think, remember, know, aware) and Intentions and Desires (e.g., want, choose, decide, intend) are not problematic in this regard; all their members seem to be clearly "internal." The subclasses Perceptual and Affective, however, seem to contain some borderline cases.

In the case of the category Perceptual, words like see and hear are clearly focused on sensory experiences. This also goes for certain

"internal senses" like ache or hurt as in My stomach hurts. Not all that far removed from these, however, are words whose meanings seem more "physical," like relaxed, full (having eaten enough), sore, etc. These seem to relate more directly to the state of the person's body than to the experience of internal states, although both are included in the meanings. In between are a number of words such as tired, nauseous, hungry, thirsty, hot, cold, sleepy, comfortable, and so on, which seem to straddle the border.

A similar group of words involve states with psychological effects or implications, but which do not seem to be "internal states" in the sense of the more prototypical members: drunk, loaded, stoned, etc.

Although the borderline cases here are not clearly categorizable, they illustrate one of the defining properties of internal states (as we are using the term), namely, that they are psychological rather than physical. If one considers the nature of the boundary between "psychological" and "physical" phenomena, it is hardly surprising that some words will be difficult to assign clearly to one category or the other.

In the case of Affective words, it is not clear where the exact boundary is between temporary emotional states (happy, angry, sad) and relatively long-term personality characteristics (patient, optimistic, irritable, "chicken"). Many words can apparently be used in either area: for example, nervous, as in He's a nervous person vs. I feel nervous right now. For that matter, happy shows that same scope of usage: He's a

generally happy person vs. You seem pretty happy this morning. Some of the following words seem to be especially questionable as to whether they can be thought of as referring to temporary emotional states: paranoid, confident, cross, grumpy, unselfconscious.

Again, although the boundary may remain unclear, as well as the exact status of words like nervous, the problem serves to clarify one of the defining criteria of internal states: Internal states are things that people experience, rather than what they are, in the long-term sense of the word. The term generally refers to temporary states or experiences.

Along similar lines, it has to be pointed out that "internal states" include processes and (relatively short-term) states, but not capacities and abilities. For example, intelligence would not be considered an internal state word, although it is definitely "cognitive" in some sense of the word. Similarly, smart, stupid, blind, deaf, perceptive, and sensitive refer to capacities, abilities, or lack of them, rather than to internal states as such.[6]

The focus of word meanings. Another cause of "fuzzy boundaries" has to do with the complexity of word meanings. Even if we were able to determine precisely for a given semantic feature whether or not it belonged to the category "internal state," this would not make the categorization of word meanings trivial.

Take for example the word lie: To say that someone is lying says something both about their beliefs (they do not believe what they are saying) and their intentions (they intend to deceive the addressee).

This deliberate deception involves the internal states of the addressee as well: The liar intends for the addressee to believe both the content of the lie, and that the liar believes what he/she is saying. But despite all this internal-state-related content, we do not want to consider lie an internal state word. There are numerous other words--for example, propaganda, testimony, promise--which have internal state components that play an important, but not primary, role in their meaning. To exclude such words from the category of internal state words, we have to add the restriction that this category includes only words whose meanings are primarily about internal processes and states.

Some restriction of this sort is obviously necessary, but it does add a new dimension of fuzziness to the category of internal state words. We are not in a position to give a precise operational definition of what it means for the internal state components of a word-meaning to be central or focal to that meaning.[7] We will, however, give examples of both clear-cut and borderline cases that will help define this boundary of the set of internal state words.

We will start with a fairly straightforward class of words: causatives of internal state words where the causative form is morphologically related to the basic internal state word:

(10) anger = cause to be angry, make angry
sadden = cause to be sad

The following words presumably reflect the same semantic relationship, even though the morphological relationships are not identical (cf. McCawley, 1968; Lakoff, 1970a, 1970b):

(11) upset = cause to be upset
depress = cause to be depressed
frighten = cause to be frightened/afraid
discourage = cause to be discouraged
annoy = cause to be annoyed
cheer (up) = cause to be cheerful

It seems intuitively clear that the causatives listed here are internal state words; although they contain the non-internal state component CAUSE, they are still primarily about internal states.

This is not necessarily the case for all words that could be analyzed as causatives of internal state words. Consider the word show. On the one hand, show includes in its meaning the components cause to see. The first meaning of show listed in Webster's Third (unabridged) is "to cause or permit to be seen." On the other hand, in many contexts show means more than simply cause to see; the focus seems to be not on the seeing, but on the activity of the person doing the showing, as in the case with the word display. In light of this, show (as in He showed me his rock collection) does not seem to be an internal state word.

(Why this is the case goes beyond the bounds of our present discussion; it may be that cause to see is not a valid description of the basic structure of the meaning of show; or perhaps, that additional components of the meaning shift the focus on the meaning out of the internal state category.)[8]

Lying somewhere between sadden, which seems clearly to be an internal state word, and show, which does not, are a number of borderline cases which have been (or could be) analyzed as causatives of internal state words, and which may be internal state words themselves. For example:

(12) convince, persuade = cause to believe (cf. Lakoff 1970a, 1970b)

(13) mislead
deceive } = cause to believe (something false)
fool

(14) distract = cause to cease to pay attention

In some contexts, these do seem to be genuine internal state words; that is, they seem to be primarily about internal states:[9]

(15) I was misled by the apparent simplicity of the problem.
Many were deceived by his rhetoric.
They were fooled into thinking that work on the project has already stopped.
Someone convinced him that registration wasn't until next week.
I was distracted for a moment, and when I looked back to my desk, the letter was gone.
He was persuaded to join the club.

On the other hand, it might still be argued that the focus in these cases is on the activity that produces some internal state, and not the state itself.[10] This is certainly true for some related words like persuasion and distraction. In the absence of a precise criteria for determining the focus of word meanings, we can only present the examples in (15) as borderline cases needing further investigation.

There are of course many complex meanings containing internal state components that do not involve the component cause. Some of these appear to be internal state words:

(16) favorite (= the one liked best)
remind (= perceive as similar--cf. Postal, 1970)

Others, although containing internal state components, are not themselves internal state words:

(17) look for
make sure (that something is done)

Some cases are not clear:

(18) look (something) over
check (something) out
examine
watch out (= be careful)
learn

Learn, for example, involves the acquisition of knowledge, but often focuses on the activity rather than the knowledge acquired, as in contexts such as the following:

(19) I spent the week learning to knit.
He wasn't sure if learning to swim would be worth the trouble.

For some words, it is difficult to assess what part of the internal state components play in the overall word-meaning because it is difficult to come up with a paraphrase that insightfully reveals the internal structure of the word-meaning. In one dictionary, the most insightful paraphrase of pretend given is make believe--and vice versa. It is not clear whether a paraphrase like act as if would be more valid than one focusing more on internal states, such as assume for the purpose of a game.

Words in the Perceptual category give another type of example of complex meanings containing internal state components. Some perceptual words are straightforward internal state words, for example, taste, feel, and smell in the following sentences:

(20) I can taste chlorine in the water.
I felt the wind blowing against my face.
If you smell smoke, wake us up.

There are related meanings of these words, however, that include additional components, as in the following examples:

(21) Tom tasted the batter.
I bent over to smell the flower.
He felt the edge of the knife to see if it was sharp.

To some extent these are parallel to other words of directed attention in the Perceptual category. That is, taste in (21) is to taste in (20) as listen is to hear or look at is to see. But unlike look at and listen, taste, smell, and feel in (21) may also include significant non-internal state components, as expressed in the following paraphrases:

(22) taste (21) = to put into one's mouth, to see how it tastes
smell (21) = to hold near one's nose while inhaling to see how it smells
feel (21) = to touch to see how it feels

These paraphrases may not all be equally valid; in the case of feel, at least, there are contexts in which the word refers more to the action of touching than to the sensory experience. Thus this particular meaning would not qualify as an internal state word.

Object of perception vs. process of perception. The Perceptual subcategory of internal state words presents us with another interesting problem in defining the limits of the class of internal state words, a problem similar to the one of determining the focus of word-meanings. This one involves distinguishing between word-meanings relating to the process or experience of perception on the one hand and the object or content of perception on the other.

The words *see* and *red* provide us with two clear-cut cases. *See* is about the experience or process of perception. *Red*, on the other hand, is primarily about a property or quality of some object, and only indirectly relates to the perceptual experience that property may evoke.

Between these two relatively clear-cut cases, however, lie some words that may be harder to categorize with respect to this distinction.

Compare the uses of the word *felt* in the following two sentences:

(23) a. The water felt cold (when I first jumped in).
b. I felt the wind blowing against my face.

In the first sentence, *water* is the subject of *felt*, and the experiencer is not explicitly expressed, although it could be, i.e. by a phrase like *to me*. The fact that *water* is the subject of *felt* might make it seem that *felt* (like *red*) is more about the properties or qualities of an object than about a perceptual experience. But it seems in this case that the differences between the two *felts* is basically a superficial one, and that both are internal state words (cf. Rogers, 1972). The same would be true of the underlined words in the following sentences:

(24) That perfume *smells* good.
The music *sounded* discordant.
The room *looked* clean.
Vitamin C *tastes* sour.

However, the exact boundary is not clear. Take for example a word like *stinks* in *That cigar stinks*. One might argue that *stinks* is primarily about the cigar, and only secondarily about the perceptual experience. A similar case is a word like *smelly* as in *That kind of cheese is usually pretty smelly*.

The following are words which seem even less like prototypical internal state words, but which do involve or imply some awareness or perceptual experience, and therefore have to be considered as potential borderline cases:

(25) The door appears to be jammed.
It seems to me that something strange is going on.
It looks like we'll have to give up.
A cloud of smoke appeared in the middle of the room.
John disappeared right before our eyes.

Subclasses of Internal State Words

The Four Basic Categories

Having discussed the general extent of the class of internal state words, and some of the problems associated with drawing precise boundaries for this class, we move on to the definition of the four basic subclasses of internal state words--Cognitive, Affective, Perceptual, and Intentions and Desires.

To begin, we give some prototypical members of these classes, to give an approximate idea of their scope and content:

(26) Cognitive: know, remember, think, aware
Affective: like, love, hope, hate, afraid
Perceptual: see, hear, look, watch, feel
Intentions and Desires: want, decide, intend, choose

The types of problems that make it difficult to decide whether or not a given instance of a word is an internal state word also make it difficult at times to decide which subclass a given word belongs to.

For example, several words are ambiguous, having meanings in different subcategories of internal state words; however, which meaning is intended by the speaker is generally clear from the context:

(27) a. I don't see anyone coming. (Perceptual
b. I don't see how they do it. (Cognitive)

(28) a. I don't feel cold at all. (Perceptual)
b. How would you feel if they said that to you? (Affective)
c. I don't feel he can handle the job. (Cognitive)

Some words seem to hold double membership. For example, hope has in its meaning both components of expectation (Cognitive) and desire (Intentions and Desires); in some context the expectation component seems focal, and in other contexts, the desire (See footnote 7).

Words like crave, yearn, and long for seem to have components of meaning in both the Affective and Intentions and Desires categories.

Theoretical Problems in Classification

Conversational Implicature. Conversational implicature involves, roughly speaking, the speaker's conveying something other than or in addition to the literal meaning of a sentence, via inferences based not only on the literal meaning, but also on the pragmatics of the speech situation (cf. Grice, 1975, 1978; Gordon & Lakoff, 1971; Sadock, 1978; Morgan, 1978). For example, Can you reach the salt, spoken at a dinner, serves not only as a request for information about how far the addressee can reach, but also as a request for the salt. Given that the information would be of little conversational interest by itself, and that the speaker is in a position where he or she could probably

use the salt, the addressee can safely assume that the speaker does want the salt, and not just an answer to the question.

The actual chain of inference involved, were it to be stated in full, would be rather elaborate, which is one reason that people make frequent use of such implicatures. Another reason is that it is often impolite to be direct; so conversational implicatures are often used to convey indirectly requests and statements which might seem impolite if stated explicitly.

For this reason, assertions and requests concerning wants and desires are often conveyed by means of assertions and requests about preferences, likes, and dislikes. One could say Do you want another cup of coffee?, but the less direct Would you like . . . seems more polite. All of the following sentences could be paraphrased, with some change of stylistic level, by a sentence using the word want.

(29) I would love to go swimming. (= I want very much . . .)
Would you like some tea?
I would enjoy going swimming.
I don't feel like going.
Wouldn't you care for some more?
I like cream in my coffee, please.
Do you prefer lemonade or iced tea?

This poses a problem for classifying these into the subcategories of internal state words: Should they be put in the Affective category, according to their literal meanings, or in the category Intentions and Desires, according to the meaning which they are used to convey?

As a general principle, we suggest that internal state words be classified according to their literal meanings rather than by meanings that may be conversationally implicated. This is because in identifying and classifying internal state words, we are concerned with lexical meanings rather than utterance meanings. The relationship of the lexical meaning of the internal state word to the meaning of the utterance as a whole is something we will consider later when we investigate the usage of internal state words.

One important qualification to this principle must be given, however. Conversational implicatures can become so conventionalized that a set phrase may come to mean directly that which it has conventionally been used to implicate. For example, it might be argued that would like as in Would you like some coffee is no longer a question about hypothetical preferences (as one might gather from the literal meaning) but rather a polite idiom for want. Such shifts in meaning occur frequently in the normal course of language change, so it is natural to expect that some conversational implicatures involving internal state words will have become conventionalized to the point of becoming idioms. In this case, they will be classified in terms of their idiomatic meaning.

Distinguishing between "live" conversational implicatures and idioms will not necessarily be easy in every case, since there may be degrees of conventionalization on the way to becoming an idiom. However, the two end points of the process can be clearly distinguished. Sadock (1972)

suggests several tests which differentiate idioms (cases where there are two distinct lexical meanings involved) from multiplicity of meaning caused by conversational implicature. One of these tests is based on the following fact: If a word (or group of words) has two distinct lexical meanings, one can construct a sentence in which one of the meanings is contradictory, and not the other, and still have a non-contradictory sentence. For example:

(30) When we found out that the plane would be on the ground for another hour due to mechanical problems, we took off.

On the other hand, if the multiplicity of meaning is due to factors such as conversational implicature, one cannot contradict one meaning and not the other, and still have a non-contradictory sentence. For example, Do you want to take out the garbage has at least two possible interpretations, one of which has nothing to do with the addressee's wants or desires. Nevertheless, (31) is contradictory:

(31) Do you want to take out the garbage, please, even if you don't want to?

In terms of such tests, would like does in fact function as an idiom for want; in examples such as the following, its literal meaning is contradicted without making the sentence as a whole contradictory:

(32) I'd like another cup of coffee, please--I hate coffee, but I have to drive all night tonight.

(33) Nurse, I'd like to get a tetanus shot--I don't like getting shots, but the doctor said it would be foolish for me not to.

On the other hand, love and enjoy can be used in sentences such as those in (29) as polite ways of communicating about what one wants, but they are not idioms in the way would like is. Their literal affective meanings cannot be contradicted without making the whole sentence contradictory, as is evident from the following examples:

(34) I'd enjoy another cup of coffee--I don't really like coffee, but I have to drive all night.

(35) Nurse, I'd love to get a tetanus shot--I can't stand shots, but I don't want to take any risks either.

Therefore, would like will be counted as an idiom in the category Intentions and Desires,[11] whereas love and enjoy, even in sentences like those in (29), belong in the category Affective. Feel like and care for apparently also belong in the Affective category.

Perception and knowledge. Another type of implication that blurs the distinction between categories is that between perception and knowledge.

Awareness and knowledge--part of the Cognitive domain--are often the result of perception. In more than one language the word for know is derived from the past tense of the word for see. The same connection is seen synchronically in English in the cognitive meanings of see, such as in sentences like:

(36) I want to see if I can add these up in my head.
I don't see how they can do it.

In some cases, it really seems difficult to know which class see belongs in. In the sentence:

(37) I see that we may run into trouble.

one might judge see to be Perceptual if the sentence was uttered by a mountain climber looking over the path ahead, and Cognitive if uttered by, for example, a government arbitrator commenting on a new turn in some negotiations. Foresee seems more clearly Cognitive.

In the other direction, it could conceivably be argued that notice (which we have classed as Cognitive) should be considered Perceptual.

Lists of Words Belonging to Each Subclass

Introduction to the lists. The following lists represent an attempt to arrive at an exhaustive list of internal state words occurring in the corpus, which consists of tapes of the everyday conversation of 40 families (Hall, 1978). Subjects were 40 preschool-age children (4.5-5.0 years) divided equally according to race and socio-economic status (SES) as follows: lower-class black (10), lower-class white (10), middle-class black (10), and middle-class white (10). SES was determined through the use of income and education indices from the scale developed by Warner, Meeker, and Ells (1949).

Language samples were collected over two consecutive days. Taping was done through the use of stereo tape recorders and wireless microphones worn by both the target children and the field worker. Although adults and non-target children in the study did not wear microphones, the two mikes used were, in general, sensitive enough to pick up all significant verbal interaction with the children in the study.

In order to sample situational variations in language, each child was recorded in a series of ten temporal situations: (a) prior to school in the morning, (b) on the way to school, (c) during the transition to the classroom, (d) during free play, (e) during teacher-directed activity, (f) during snacks and toileting, (g) on the way home from school, (h) prior to dinner, (i) during dinner, and (j) prior to bed. The settings for these temporal situations consisted of not just home and classroom, but playground and community as well. Additional recording was done of parents in a formal interview situation which investigated questions relating to the child and his home and school environments.

In the collection of data, the field worker tried to be as unobtrusive as possible. He rarely initiated conversation, but, if spoken to, attempted to respond naturally. One of the field workers's responsibilities was to provide a verbal description of the context. For the purposes of this research, the context included where the recording took place, where the subject was, who the interactants were, and what they were doing--both their verbal and non-verbal behavior. Furthermore, the descriptions of context often included what happened prior and subsequent to, as well as simultaneous with, verbal interation.

The length of the recordings in each of the temporal situations varied from 15 to 60 minutes. When summed, this amounts to a total of 420-500 minutes of talk for each child and about 300 hours overall. Hand-written transcripts were made of the recordings and coded onto

computer punch cards and then computer tape. Each turn of talk was transcribed on a separate punch card (or two cards if necessary because of turn length), producing a total of 10,000 cards per child or 400,000 overall. On each punch card, in addition to the transcription of a turn, the following information was coded: Subject number, SES, race, speaker, and situation.

The lists of internal state words we have extracted from this corpus of data are not in fact exhaustive, however; the following limitations and qualifications have to be kept in mind.

1. These lists are based on a corpus of about 300 hours of recorded conversation; although this is a massive amount of data, it does not by any means include all internal state words in common usage.

2. Some of the data were gathered by reading through the actual transcripts of the conversations; however, it was not feasible to read through the entire corpus in this way. Therefore, much of the list is based on a word-list extracted from the corpus. This has the drawback of removing contextual clues, and we can only speculate as to whether mind occurs in phrases such as come to mind or cross one's mind in the corpus. (The idiom change one's mind does in fact occur.) Some of the idioms listed are therefore ones which may occur in the corpus.

3. Most words have a number of meanings. Therefore, to list a word as belonging to a given category is to say that the word has at least one meaning in that category. In some (but not all) cases we will give an illustrative sentence to show which meaning of a particular word we have in mind.

Since words have multiple meanings, the fact that a given word is listed as a member of some subclass, e.g., Cognitive, does not mean that all instances of that word should be considered as Cognitive internal state words; nor does it even imply that all instances of that word will be internal state words. The actual context of use is what will determine the specific meaning a given token of a word has, and therefore, how it should be classified. In formulating the lists, we will generally include rather than exclude questionable or borderline cases, leaving the final decision to the examination of the word in its context in naturalistic data. For an alternative categorization of internal state meanings based on linguistic principles, see Louw, Nida, and Smith (Note 1).

Lists of "cognitive" words. This list contains the cognitive words that have been found to occur in our corpus. The subgroupings given are primarily to make the content and the boundaries of the category Cognitive more explicit.[12]

(38) a. Consciousness/Knowledge/Understanding

aware	head (can't get it out of my head)
conscious	mind (crossed my mind, come to mind)
notice	pick-up (= learn)
know	find (out)
knowledge	dawn (on someone)
recognize	slip (one's mind)
experience (v)	track (keep track of, lose track of)
realize	blank (draw a blank)
recall	get (= understand)
remember	see (= understand, find out)
forget	catch (= understand, perceive)
misunderstand	follow (I don't follow you = don't understand)
understand	
click	

b. Directed attention

notice	(pay) attention
ignore	concentration
engrossed	concentrate
distracting	

c. Thinking (as an activity)

think	consideration
thought	pondering
concepts	concentrate
idea	figure (out)
conceivable	reason (v)
consider	

d. Mental states relative to a proposition: belief, certainty, etc.

accept	guess
agree	hope
anticipate	imaginary
anticipation	inagination
belief	inagine
believe	impression (get the impression,
bet	under the impression)
buy (I can't buy that)	positive
certain	satisfied
confidence	seem (It seems to me)
consider	suppose
convinced	sure
curious	suspect
doubt	suspicion
dream	swallow (I can't swallow that)
expect	view (I view it as . . .)
feel (I feel it would be best)	
figure (I figured it would happen)	

e. Mental acts relative to a proposition:

assume	make-believe
wonder	make up
conclusion	invent
pretend	

The following words are of questionable status, but might belong to the Cognitive category:

(39) careful
get used to
learn
teach
appear (it appears to me)
fool
deceive
confuse

"Perceptual" words. The following list contains the words in the corpus that fall into the category Perceptual. This category breaks down into two basic subcategories, the "five senses" and the more "internal senses." As has been discussed above, the exact boundaries of the latter class are unclear.

(40) a. Perceptual words involving the "five senses"

appear	see
feel	sight
hear	smell
hearing	taste
look	view
observe	watch
peek	
peep	

b. Possible/questionable members of this group:

notice	touch
observation	ear
seem	sound

c. "General body perceptions"

beat (= tired)	dizzy
hungry	exhausted
hurt	nauseous
sore	ravenous
uncomfortable	sleepy
warm	starved

c. continued

ache	thirsty
appetite	tired
cold	zonked
comfy	comfort
comfortable	

d. Possible/questionable members of this group:

awake	stuffed
relax	restless
relaxed	satisfied

"Affective" words. The next list contains words that belong (or seem to belong) to the Affective category, that is, words which relate to feelings and emotions.

(41)

aback (taken aback)	bug	delirious
afraid	bummer	down
agitate	burns (burns me up)	encourage
alarm	care	encouragement
alarmed	cheer	embarrass
amazed	cheerful	enjoy
amusing	concern	enjoyment
anger	concerned	enthused
anticipation	cross	enthusiasm
angry	dazed	envy
annoy	dejected	exasperated
annoyed	delight	exasperating
anxious	delighted	excited
appalled	depressed	exciting
appreciate	depressing	favorite
approve	desperate	fit (throw a fit)
attitude	desperately	flip (= like)
ashamed	desperation	flip (out)
astonished	displease	floor (it floored him)
bear (can't bear)	disappoint	freaking (?)
blue	disgust	frustrating
blues	disgusting	fuss
bother	disillusioning	fear
bothersome	dismal	fond
bored	disturb	
	disturbing	

(41) continued

fright
frighten
frightened
fumes
furious
feel
glad
grief
hilarious
hurt
happy
hate
hateful
hysterical
heart
(set one's heart on)
hope
infuriating
intimidated
interest
interested
interesting
irritated
jealous
joy
kicks
like
lonesome
love
look forward to
mad
maddening
miserable
miss
mixed up
mood
moody
nuisance
nervous
pity
possessed
proud
passion
peed (off)
piss(ed) (off)
please
pleasure
prefer
preferences
raging
raving
reacting
reactions
rejoice
reluctantly
regret
resent
resolve
resolution
serious
seriously
soul
spirit
stand
(can't stand)
sympathy
sympathetic
sad
sadness
scare
scared
scary
scaredy (cat?)
shame
shock
shocked
shook
sick (of)
sickening
sorrows
sorry
stun
suffer
surprise
surprised
surprising
satisfied
tantrum
tempted
threaten
threatening
trust
tense
terror
thankful
thrilled
unhappy
upset
untight
yellow
zonked
respect
worry
worried

Some words seem to have some Affective components, but have been categorized elsewhere. The following, for example, are included in the category Cognitive.

(42) curious
hope
coubt
certain
sure
convinced

Some possible members of the Affective category, not listed in the main list are:

(43) get used to
accustomed
acclimated
adjust

"Intensions and desires". The members of this category are listed in several semantically defined subgroups, first to make the scope and content of this category more explicit, and second to make it easier to see how this category might be reanalyzed. One might prefer, for example, that desires be classified in the Affective category, and intentions in the Cognitive category, rather than grouping them into one class. We concede that the suggestion is plausible, but feel that it would erase important basic distinctions in how these words of internal report might be actually used.

(44) a. Wants and desires

desires	tempted
want	heart (have one's heart set on)
wish	
would like	

b. Intention, plan, purpose

aim (to)	purpose
intend	plan
have (half) a mind to	mean

c. Determination

resolve	deliberately
resolution	determined

d. Decisions and choices

decide	pick
choose	change one's mind
make up one's mind	

e. Willingness

willing
willingly
volunteer

The word mean is potentially the most problematic member of the group, since it has several meanings, which on the one hand seem to be related, but on the other hand do not all belong in the category of internal state words. Mean definitely belongs in the class Intentions and Desires when it can be paraphrased by intend, in sentences such as (45):

(45) Did you really mean to do that?

It is less clear how to classify mean in the sense of "intend to express, signify, or indicate" (Webster's Dictionary, 1962) as in (46):

(46) I meant that I didn't expect to be able to come.
I thought you meant the one on the left.

The component of intention mentioned in the definition is probably not the focus of this word meaning, at least not in the contexts in the above examples; therefore its status as an internal state word is questionable.

There are of course several meanings of mean that are not internal state words at all, for example:

(47) What does that word mean?
Don't be so mean.

INVESTIGATING THE USE OF INTERNAL STATE WORDS

Introduction to Investigation of Use

In the sections above we have been concerned with defining that class of words which by virtue of their lexical meaning can be called words of internal report, or internal state words. Now we turn to the question of how such words are used in natural discourse. Our investigation of usage centers on two basic questions: First, when are internal state words being used to communicate about internal states, and when are they used for other functions? Second, when are internal state words being used to communicate about internal states concurrent with the speech situation, that is, the speaker's or addressee's own current internal states?

The first of these questions might seem odd, at first, since the obvious function of internal state words is to communicate about internal states. This is, to be sure, their primary function; but one cannot equate use of internal state words with communication about internal states. On the one hand, it is possible to communicate about internal states without using internal state words; and on the other, it is possible to use internal state words without communicating about internal states.[13]

There are several ways one can communicate about internal states without using internal state words. There are some syntactic constructions that allow this, such as the dative of experiencer, as in the following sentence:

(48) It's odd to me that he would leave so early.

One can also refer to internal processes and states using words that in themselves are not internal state words. For example, the underlined words in (49), although they could refer to lecturing or writing, could refer to pondering or thinking:

(49) Few people are willing to tackle (deal with) the philosophical issues he's about to start on.

Similarly, the effect in (50) could refer chiefly to emotions:

(50) I don't know what she said, but it had quite an effect on him.

In addition, it is always possible to coin new metaphors for internal states.

The ways in which internal state words can be used for functions other than communicating about internal states will be covered in the discussion of the Semantic/Pragmatic distinction in the next section. The second basic question, concerning how internal state words are used to refer to the speaker's or addressee's own current internal states, is dealt with in the section on Reflections.

The Semantic/Pragmatic Distinction

General Discussion: The Basis and Motivation of the Distinction

The question underlying the Semantic/Pragmatic distinction is: When are people using internal state words to communicate about internal states, and when are they using them for something else?

The first step in answering this question is to define more clearly and operationally what we mean by "using an internal state word to communicate about an internal state." We will approach this in terms of the

role the literal internal state meaning of an internal state word plays in the intended meaning of the utterance which contains that word. This will become clearer from an example where the distinction is clear-cut. Compare the two following sentences:

(51) a. Did you know that George can play shortstop?
b. You know, George can play shortstop.

The first sentence is about the addressee's knowledge; the literal meaning of know plays a direct and important role in the overall meaning of the sentence. The second sentence, on the other hand, does not have much to do with knowledge as such. The two sentences presumably differ substantially in terms of the structure of their semantic representations. In the case of (51a), the proposition George can play shortstop is an embedded clause in the scope of know. This would not be the case for (51b); know plays a much more peripheral role in the logical content of this sentence.

To take another kind of example, consider a sentence such as Do you want to take out the garbage, please? when uttered with the intention of conveying a meaning that might be paraphrased Please take out the garbage. While the literal meaning of the word want may be said to contribute to the intended meaning of the utterance, the contribution is indirect, and the intended meaning actually has little or nothing to do with the wants or wishes of the addressee.

We will use the label "semantic" for cases where the literal internal state meaning of a word contributes directly to the intended meaning of the utterance which contains it. "Pragmatic" describes those cases where

the literal internal state meaning of a word contributes indirectly if at all to the intended meaning of the utterance.

At this point we will briefly mention some of the reasons why a token of an internal state word might be considered "pragmatic"; that is, in what sort of cases the internal state meaning of the word does not contribute directly to the intended meaning of the utterance.

One general class of such pragmatic usages is indirect speech acts (cf. Sadock, 1974; Morgan, 1978). This class might be characterized as utterances whose intended meaning can be inferred from the literal meaning by "conventional implicatures" or "conversational postulates" (cf. Grice, 1975; Gordon & Lakoff, 1971). The indirect speech acts that are of interest to us are those whose literal meaning contains an internal state meaning which is not directly part of the implied or intended meaning. The example cited above, Do you want to take out the garbage, please? belongs in this class. Rhetorical questions (You know what I'll do? I'll talk to the teacher about it) belong in this same class.

Another class of pragmatic usages can be labelled "conversational devices and mannerisms." These consist of highly stereotyped phrases containing (or consisting of) internal state words which have completely, or almost completely, lost their literal content, as in the following examples:

(52) You know, I should do something about that leak.
Look, I don't want any trouble around here.

These two categories (indirect speech acts and conversational devices and mannerisms) form two fairly cohesive and clear-cut categories of pragmatic usages. There are some other categories of pragmatic usages, especially attentional devices and hedges, that are somewhat more problematic. We will discuss these in the next section where specific types of pragmatic usages are described and illustrated in detail, after we have established the basic nature and motivation of the Semantic/Pragmatic distinction.

There are other vantage points from which one can look at the Semantic/Pragmatic distinction. One is in terms of the role that a word plays in the hearer's interpretation of an utterance. From this point of view, pragmatic instances of internal state words are less crucial to the interpretation of the utterance; one can, so to speak, ignore conversational devices and mannerisms like ya know and still have an accurate understanding of the propositional content of the sentence.

Another related perspective is the degree to which a given instance of an internal state word might be helpful to a child in acquiring the corresponding internal state concept. A sentence such as I don't remember where I left my keys, uttered in the right context, might provide information that would help a child learn what the word remember means. On the other hand, the know in ya know does little if anything that would help a child develop his/her concept of knowledge.

These two perspectives illustrate the educational and psychological significance of the categories "Semantic" and "Pragmatic." But they also highlight the fact that the semantic/pragmatic distinction, although it may have to be treated as a dichotomy for coding purposes, is also in some respects a continuum. In indirect speech acts, for example, although the internal state word does not contribute directly to the interpretation of the utterance, it does contribute, to the extent that the hearer knows the rules of conversational inference. The lexical meaning of the internal state word definitely plays more of a role in the indirect speech act than in the conversational device or mannerism. The same seems to be true in the case of concept acquisition: Since children begin to use indirect speech acts at a fairly early age (cf. Ervin-Tripp, 1977), is quite possible that the occurrences of internal state words in indirect speech acts could be of some use to the child in forming internal state concepts (or developing familiarity with them). On the other hand, conversational devices and mannerisms seem to be pragmatic in an absolute sense: The lexical meaning of the internal state word plays a minimal role in the interpretation of the sentence, and the sentence containing such a usage of an internal state word would contribute little, if anything, to the acquisition of the associated concept.

To better reflect the varying degrees of semanticity, one might choose to work with a three-way system of coding categories to reflect the contribution of the internal state meaning to the intended meaning of the utterance:

(a) Fully semantic--the literal internal state meaning contributes to the interpretation of the utterance in a literal and straightforward way. This coincides with what we have already called "semantic." (b) Indirect--the internal state meaning of the word contributes to the interpretation of the intended utterance meaning, but not directly or completely. This would include indirect speech acts, as well as hedges and attentional devices. (c) Fully pragmatic--the internal state meaning of the word contributes little or nothing to the intended utterance meaning. This category would cover conversational devices and mannerisms.

The choice of the coding system will of course depend to a large extent on what sort of inferences one intends to draw from the data arising from the Semantic/Pragmatic coding.

Criteria for Identifying Pragmatic Usages

Conversational devices. Having discussed the nature of the Semantic/Pragmatic distinction, we now want to examine in detail the kinds of pragmatic usages of internal state words that occur in naturalistic data. We will start with the most clear-cut cases of pragmatic usage, namely, conversational devices.

Conversational devices are pragmatic usages of internal state words which (a) tend to be highly conventionalized; (b) contribute minimally to, and are not tightly integrated into, the propositional content of the context; and (c) function mainly in terms of the process of conversation

rather than its content; that is, filling pauses, getting or maintaining the addressee's attention, or indicating to the other person that one is in fact aware of what is being said.

(It must be noted that not all conventionalized usages of internal state words are necessarily pragmatic. For example, in a sentence like:

(53) You're not supposed to eat like that, and you know it.

the phrase and you know it seems highly stereotyped, and yet also seems to have its full literal meaning.)

These functions can be performed by non-internal state words as well, for example, hey, say, and well in sentences such as (54),

(54) a. Hey--let's go to the movies.
b. Say, do you want to see what's on TV?
c. Well, let's wait at least five more minutes.

or mhm or some other minimal token of affirmation a speaker often expects from the addressee as a sign that the addressee is in fact alive, awake, and aware (at least to some extent) of what the speaker is saying.

Perhaps the most prototypical case of a conversational device is the mannerism you know as used in the following examples:

(55) a. You're not serving the children, you know.
b. You know, I think something should be done about it.

To say that these usages are pragmatic is not to say that know is meaningless in this sentence, or does not contribute to the understanding of the utterance. If it were meaningless, there would be no difference between:

(56) a. You know, I think something should be done about it.
b. You see, I think something should be done about it.
c. I mean, I think something should be done about it.

But on the other hand, it is clearly not tightly integrated into the propositional content of the rest of the sentence. That is, the two following sentences are not at all synonymous:

(57) a. You know, I think something should be done about it.
b. You know that I think someting should be done about it.

The use of know in (57a) is highly conventionalized. One proof of this is that it does not allow modification; that is, sentence (58) can be interpreted as parallel to (57b) but not (57a):

(58) You surely know I think something should be done about it.

Exactly what the mannerism you know does contribute is hard to determine out of context. It may serve as a way for "getting a word in edgewise," that is, claiming a turn in the conversation; it may be an unconscious attempt to maintain the addressee's attention, or serve simply as a pause-filler.

Other words in the Cognitive category also have uses as conversational mannerisms; while clearly pragmatic, they differ in their conversational functions and connotations:

(59) a. You don't need a bow, remember, just a . . .
b. That reminds me of Grandpa Charlie's story, Julie, you remember, where I told you the story about . . .

(60) a. It's well you see it's a very sweet little thing.
b. You see you shouldn't eat your pork chop like that.
c. See, her mike and my mike are independent.

Some Perceptual internal state words also have similar functions:

(61) Look, I don't want to waste any time.

(62) Listen, if a word of this ever gets out . . .

The mean in I mean is similar as well:

(63) a. That's right, I mean, just be . . .
b. I mean, the topics they talk about aren't even the same as truck drivers around here.

(As mentioned earlier, the mean in I mean seems to have the same lexical meaning as in sentences such as:

(64) What I meant was that we should try not to be more than a half an hour late.

Since this mean can be paraphrased as "intended to say" or "was trying to say," it is not clear whether or not it is actually a bona fide internal state word.)

Another type of conversational device, acknowledgements and back-channel responses, function as mhm does when it is used by the addressee to give the speaker permission to continue speaking, or to reassure the speaker that the addressee is following what the speaker is saying. Some examples of this are:

(65) I know.
I see.

This category might also be considered to include the following:

(66) a. Let's hope so.
b. Well, I hope so.
c. I feel that way too.
d. My sentiments exactly.

On the other hand, these might under some circumstances be taken to be semantic usages of the internal state words; that is, the lexical meanings of the words may contribute directly to the interpretation of the utterance. It must be remembered that an internal state word can contribute to some definable conversational function without losing its contribution to the propositional content of the sentence; therefore, the fact that a sentence such as Let's hope so serves a particular conversational function is not sufficient evidence in itself to demonstrate that the word hope in that sentence must be pragmatic rather than semantic.

Another conversational device that seems to function mostly as a pause-filler is Let's see (or Let me see). The see in this case seems to be Cognitive rather than Perceptual.

The related phrase Let me think, on the other hand, seems to retain its literal meaning. It is also not as conventionalized, allowing modification, as in Let me think for a minute.

Two further uses of internal state words have become so conventionalized that it is not clear whether to treat them as pragmatic usages of internal state words, or idioms which are based on internal state words but have their own new lexical meanings.

The first is the use of see in expressions like see you later or see you in a little while.

The second involves the use of affective words like sorry. Sorry is often used semantically, and its meaning clearly belongs in the internal state category, as in (67):

(67) I'm sorry I ever decided to go to college.

The use of sorry in apologies also would be considered semantic, since an apology normally counts as an expression of regret. Some uses of sorry, though, seem more pragmatic; that is, the word seems to serve a conversational function more than conveying regret on the part of the speaker:

(68) I'm sorry, Melissa, there is nothing sour or bitter about these greens.

Similar to the use of sorry in (68) is the afraid in (69):

(69) I'm afraid I didn't think of it.

There are some additional pragmatic usages of internal state words that seem to be conversational devices, although they do not fall into the groups discussed above. One is believe me (and the alternative believe you me) when used as a marker of emphasis, rather than as an exhortation for the addressee to believe something, as in:

(70) They'll bump into it, believe me.

Indirect requests and suggestions. Conversational devices are the "most pragmatic" of the pragmatic usages of internal state words; that is, they constitute the cases in which the lexical meaning of the internal state word contributes the least to the meaning of the utterance in which it occurs. In addition, they are also characterized by the fact that they are minimally integrated into the propositional content of the context.

Indirect requests and suggestions constitute a different type of pragmatic usage, where the internal state word is closely connected with

the literal meaning of the sentence in which it occurs, but the sentence is used to convey not this literal meaning, but rather a meaning which is implied by the literal meaning of the sentence. A typical example of this would be a sentence such as the following:

(71) Do you want to take out the garbage, please?

On the one hand, want is an integral part of the literal meaning of this sentence, both syntactically and semantically. On the other hand, by a conversational implicature that has become conventionalized in English, this sentence is normally used to convey, not a question about the addressee's desires, but a request, which could be paraphrased:

(72) Please take out the garbage.

(The fact that please can be used in (71) shows that this implication has become conventionalized.) Thus it can be said that want does contribute to the meaning of (71), but only indirectly.

In our data there are several instances of want being used in ways that should probably be classed as indirect requests and suggestions. For example:

(73) a. Now you have nine blocks, wanna make them in a straight line?
b. When you find out her brain pattern, you want to tell us where the brain is actually located?

In both cases it seems that the intended meaning is a request; that is, that these could be paraphrased as:

(74) a. Now that you have nine clocks, put them in a straight line.
b. When you find out her brain pattern, tell us where the brain is actually located.

In other cases it may not always be clear whether the speaker is making a request or suggestion, or actually asking about the desires of the addressee. Trying to paraphrase with an explicit request (as we have just done) is probably the best test to determine the intended meaning. However, since it is possible for a speaker to intend to convey both the literal meaning of a sentence and its implications (cf. Morgan, 1978; also, example (78) below), it would seem best to consider pragmatic only those usages where the literal meaning of want seems clearly not to be intended.

Another use of want that may belong to the category of indirect requests and suggestions is exemplified by the following sentence:

(75) I want to know why there's--how come there's six people up on the loft.

The literal meaning of the sentence is a statement about the speaker's desire to know something, but in this case the words I want to know are used to convey a request. Thus, (75) can be paraphrased by (76):

(76) Why are there six people up on the loft?

Rhetorical questions. Questions about the addressee's knowledge[14] often serve very specific conversational functions. Consider a sentence such as (77):

(77) Do you know what happened to Harry?

In some contexts, and with certain intonations (e.g. focal stress on you), such a question might have as its primary purpose determining the state of the addressee's knowledge concerning some event. But in many contexts, the primary purpose of (77) would be related to its conversational function. By uttering such a question, the speaker implies (1) that something has happened to Harry, and (2) that it is likely to be of interest to the addressee--otherwise, he/she would not have mentioned it (cf. the principle of relevance in Grice, 1975). Thus, (77) can serve conversational functions such as getting the addressee's attention, changing the subject, or getting feedback from the addressee, that is, permission to pursue a particular topic.

There are different roles that the literal meaning of such a question can play in this process. Frequently, the implied conversational functions are conveyed via the literal question--that is, the addressee responds to the literal question, and also to its conversational implications, as in an exchange like (78):

(78) A: Do you know what happened to Harry?
B: No, I don't. What happened to him?
A: Well, he was on his way out of town when . . .

However, the jump from the literal to the implied meaning sometimes becomes so automatic that the sentence can be said to convey directly what would otherwise only be implied; the literal meaning is "skipped over." This is sometimes the case with questions about the addressee's knowledge like (77)--especially when the speaker does not give the addressee time

to answer the question, but goes right on with the topic that has thus been introduced, as in (79):

(79) Do you know what happened to Harry? He was on his way out of town when . . .

In such a case, the literal meaning of the question--whether or not the addressee knows about the event--does not play a direct role in the meaning of the utterance. (79) might be paraphrased by (80):

(80) Let me tell you what happened to Harry--he was on his way out of town when . . .

The fact that the word know does not appear in the paraphrase given in (80) indicates that know in (79) is pragmatic--that its literal meaning does not contribute fully and directly to the meaning of the utterance, as it does in (78).

As a criterion for determining which cases are semantic and which pragmatic, we suggest the following: Internal state words in questions about the addressee's knowledge will be considered semantic if the addressee responds to the literal question, as in (78). They will be considered pragmatic if the addressee does not respond to the literal question, either because the speaker does not allow time for it, as in (79), or because the addressee responds instead to the implication alone, as in (81):

(81) A: Do you know what happened to Harry?
B: What?
A: Well, he was on his way out of town when . . .

We use the term "rhetorical questions" for questions containing such pragmatic usages. There are of course other types of rhetorical questions that contain internal state words, such as the following:

(82) Who could have imagined that this is what would happen?
Would anyone dare to doubt that what he says is true?
Who is more aware than I of the great danger involved?

Although such questions are rhetorical in the common sense of the word, they are of no direct interest to us, because the fact that they are rhetorical in no way diminishes or changes the contribution of the internal state words in them to the overall meaning of the sentence.

Exam questions. In situations such as classrooms, questions are often asked, not because the speaker does not know the answer, but rather, because he or she wants to find out if the addressee does. Teachers or parents, for example, might ask children questions like "What color are apples?" or "How much is five and three?" Such questions are called exam questions.

Certain exam questions involving internal state words are similar to rhetorical questions in several respects. Consider an example such as (83):

(83) Do you know who discovered America?

This question, taken literally, is a yes-no question about the addressee's knowledge. Taken literally, yes or no would constitute an acceptable answer. Since teachers seldom go by a pupil's estimate of his or her own knowledge, however, such a question normally is used to convey the implied Wh-question, in this case (84):

(84) Who discovered America?

As in the case of rhetorical questions, we will use the type of answer given to determine whether the internal state word involved should be considered semantic or pragmatic. If the literal questions is responded to, as in (85) or (86), it is semantic:

(85) Teacher: Do you know who discovered America?
Pupil: Yes, Christopher Columbus.

(86) Teacher: Do you know who invented the light bulb?
Pupil: No.

On the other hand, if only the implied Wh-question is answered, we will count the internal state word as pragmatic, as in (87):

(87) Parent: Do you remember how they used to start fires when they didn't have matches?
Child: Rub sticks.

Hedges. Hedges, as they relate to internal state word usage, involve the use of words with meanings of opinion and belief to convey uncertainty.

A general rule of conversation is, roughly stated that the speaker should make the strongest relevant claim. (This would fall under the Quantity maxim of the Cooperative Principle--cf. Grice, 1975.) If you say that the food at a restaurant is "adequate," you imply that is was only adequate, and not especially good. Had it been very good, you would have said so explicitly.

This principle has implications for the use of words like believe, think, bet, feel, guess, suppose, and opinion in everyday conversation.[15] In some contexts, believe, think, and words of similar meaning have what one could call a "neutral" meaning, that might be paraphrased as "to consider to be true" or "to hold the opinion," as in (88):

(88) Some astronomers believe that the universe will continue to expand indefinitely.

However, because of the principle that the speaker should use stronger words like know or certain if they in fact fit the situation, the use of

believe or think often emphasizes the uncertainty or lack of verifiability that differentiate believe and know. One context in which this is the case is when contrastive stress is on the word believe or think:

(89) John thinks he's going to be invited to the party.

The words think and believe do not necessarily imply that the propositional content of their complements is doubtful, but in (89) the implicit contrast with know does convey this.

Another context in which this is the case is in first person assertions about beliefs, as in:

(90) I think it's going to rain.

The basic reason for this is as follows: The word think in such a sentence is largely redundant. If you say "It's going to rain," it is clear (assuming normal contexts and use of language) that you believe it is going to rain; there is no need to assert that you believe what you assert. Therefore, to use the word think in such a sentence is to implicitly emphasize it. The effect is more or less the same as in the contrastive stress example given above in (89)--what is conveyed is not the fact that you have an opinion, but rather the fact that what you are asserting is dubious or uncertain because it is based only on belief, and not knowledge.

Now we want to try and determine whether the use of think in any of the following sentence types should be considered pragmatic:[16]

(91) a. I think it's going to rain.
b. I think it is going to rain.
c. I think it is going to rain.
d. It's going to rain, I think.

There are two aspects to the meaning of think: the literal meaning of opinion, what one considers true, and the implication of doubt or uncertainty. The Semantic/Pragmatic distinction has to do with the function of these two aspects in the intended meaning of an utterance containing the word think. If the literal meaning is clearly a part of what the speaker is trying to convey, the usage of think is semantic--even if the implication of doubt and uncertainty is also present. If, on the other hand, the implication of doubt or uncertainty is all that the word think contributes to what the speaker is saying, its use is pragmatic.

Using this as a guideline, we would categorize the examples in (91) as follows:

First, (91d), It's going to rain, I think, can fairly safely be classed as pragmatic. The I think in this sentence is primarily an expression of doubt or uncertainty on the part of the speaker, rather than specifying what the speaker believes to be true. The fact that think in (91d) is not tightly integrated into the surface syntactic structure of the sentence suggests that its role in the semantic structure of the sentence may also be relatively peripheral (compared to a fully semantic use of think such as John thinks it's going to rain).

The same can be said of other tags, such as I bet, I guess, I suppose.

Second, (91c), I think it's going to rain, can without question be classified as semantic. It is about the speaker's opinion, and does not convey uncertainty at all.

The think of (91b), I think it's going to rain, should also be considered semantic. It does have in common with the pragmatic usage of think in (91d) a focus on the doubt or uncertainty that think implies in some contexts. However, the stress of think in (91b), and its position in the sentence (that is, in the normal position and not as a tag at the end of the sentence), suggest that the literal meaning of think is part of what is conveyed. The implication of uncertainty is conveyed via the literal meaning in this case.

The hardest type of sentence in (91) to classify in terms of the Semantic/Pragmatic distinction is (91a), I think it's going to rain. The following are sentences of this form taken from the corpus of data described in Hall (1978):

(92) I think we have everything.
I bet it's a microphone.
Well I . . . I think he's getting better, but uh . . .
I think you didn't serve M. her chicken.
I think that um as you grow sometimes you develop a taste . . .
I think we had it once before.
I think they're three pounds for a dollar.
I think you took it apart.
I think the drink gave me an extra appetite.

It seems to depend on the context and the intonation of the particular utterance whether I think it's going to rain should be treated as more like I think it's going to rain (semantic) or It's going to rain, I think (pragmatic). Part of the difficulty in classifying these cases stems from the fact that the Semantic/Pragmatic distinction is a continuum; there are varying degrees to which a lexical meaning can be directly or indirectly

involved in the meaning of an utterance. All of the examples with think we have looked at seem to be borderline cases to some extent. Another source of difficulty is that the Semantic/Pragmatic distinction attempts to capture something that is not always directly measurable, namely, what the speaker intends to convey in uttering a sentence.

We suggest the following as a possible criterion for classifying sentences like I think it's going to rain as semantic or pragmatic: If such a sentence, taken in context and considering its intonation, can be paraphrased by the more clearly pragmatic hedge with the tag form, It's going to rain, I think, then it can be considered pragmatic. Otherwise it is semantic. On this basis, we believe that most of the examples in (92) could be considered pragmatic, but the decision would have to be based on the examination of these sentences in context, and it must be remembered that this is one of the fuzziest boundaries involved in the Semantic/Pragmatic distinction.

Opinion questions. In the discussion of hedges, we noted that first-person assertions involving the word think were problematic. On the one hand, think is somewhat redundant in a sentence like I think it's going to rain, and in some cases contributes little more than some degree of doubt or uncertainty on the part of the speaker about the sentence. On the other hand, it is not clear that the literal meaning of think contributes so little to the intended meaning of the sentence that it should be considered a pragmatic usage.

Second-person questions with think are similar, as in the following examples:

(93) a. Why do you think the fire went out?
b. What do you think he wants?
c. Do you think it will rain?

Like the corresponding hedges, they seem to fall on the boundary between semantic and pragmatic usages.

Some cases, though, are clearly semantic. Sometimes this is due to the intonation, as in (94):

(94) Why do you think the fire went out?

In this case, the focus is more on the literal "opinion" meaning of think; it might be paraphrased by (95):

(95) In your opinion, why did the fire go out?

Other cases are clearly pragmatic. In the following cases, for example, second-person questions with think seem to function as indirect requests and suggestsions:

(96) a. Don't you think we should decide what we're going to do?
b. Do you think you could take out the garbage?
c. Think we should start moving the furniture?

The pragmatic nature of think in such sentences is shown by the fact that they can be paraphrased rather accurately without using the word think at all:

(97) a. Shouldn't we decide what we're going to do?
b. Could you take out the garbage?
c. Should we start moving the furniture?

There are also rhetorical questions involving think that are clearly pragmatic:

(98) And do you think he came to visit me in the hospital? Not once in the whole three weeks!

Attentional devices. Attentional devices are uses of Perceptual words which function primarily to get the addressee's attention. They can be divided into two basic categories:

(A) Imperatives of verbs like look, listen, and watch:

(99) Look what I did!
But then look what happened, see!
Look. Hey Julia, look. Julia, look what I did with yours.
Look at that!
Look it! This guy only got no arms and only one leg.
Watch out!
Look at Matilda!

(B) Questions and reduced questions with see:

(100) You see that? Put your finger on this.
The small circles go in the curved section. See?
Oh! See that? A spark.
See, they're showing you all kinds of fires.
See, look at the needles jump.

On the one hand, it seems clear that such usages are not as pragmatic as most of the pragmatic usages we have already discussed. While the major purpose of saying "Look!" may be to get the addressee's attention, it is probably also the case that in this case visual attention (rather than listening) is being requested; thus, the literal meaning of the internal state word is playing an important role in the intended meaning of the utterance.

On the other hand, there is a real difference between, for example, a music teacher saying "Listen!" in a loud voice to the class to get their attention, and the same teacher saying "Listen carefully to this next part where the trumpets come in." It can be argued that the lexical meaning of listen plays a more substantial role in the second case than in the first. The second is also much more likely to cause the addressee to monitor the process of listening.

We can intuitively characterize attentional devices as uses of perceptual internal state words where the function of getting the addressee's attention is more important than the specific lexical meaning of the word; but it is difficult to give any more precise criteria for how to identify such instances in texts.

It is possible to distinguish between attentional devices and several other superficially similar pragmatic usages. For example, consider the following pairs of sentences, where the (a) version illustrates an attentional device, and the (b) version a conversational device:

(101) a. Look! I can do a cartwheel!
b. Look, I paid a lot of money for this car and I expect . . .

(102) a. Listen! I have something important to tell you.
b. Listen, if you think you can get away with . . .

(103) a. See? Her mike and my mike are independent.
b. See, her mike and my mike are independent.

Reflections

Motivation and Basis for the Category

The Semantic/Pragmatic distinction discussed above is the first step in the investigation of how internal state words are used to communicate about internal states. A semantic token of an internal state word is one whose literal internal state meaning contributes directly to the intended meaning of the utterance; therefore, an utterance containing a semantic internal state word token is at least to some degree about an internal state. (The focus of the utterance-meaning as a whole may of course be on something else.) A pragmatic token of an internal state word, on the other hand, is a word whose literal meaning contributes only indirectly, if at all, to the meaning of the utterance; the utterance is therefore not about the internal state normally referred to by that internal state word.

A key concept in the investigation of the use of internal state words is that of metacognition. In two recent papers, Flavell (Note 2, Note 3) cites several pieces of research illustrating a wide variety of areas relating to education and children's cognitive development in which metacognition is now thought to play an important role. He defines three basic concepts as follows:

(104) a. Metacognition: "knowledge or cognition that takes as its object or regulates any aspect of any cognitive endeavor." (Note 3, p. 4)

(104) b. Metacognitive knowledge: "Metacognitive knowledge consists primarily of beliefs about what factors or variables act and interact in what ways to affect the course and outcome of cognitive enterprises." (Note 2, p. 4)

c. Metacognitive experience: "Metacognitive experiences are conscious cognitive or affective experiences which occur during the enterprise (that is, some cognitive enterprise) and concern any aspect of it." (Note 2, p. 1)

To recap briefly, metacognition includes knowledge or cognition having cognition as its object. Metacognitive knowledge is knowledge about cognition; metacognitive experience consists of awareness or consciousness of some aspect of cognition.

For our purposes we will want to modify the concept of metacognition slightly. As it was defined, metacognition consists of knowledge or cognition that has cognition, or any aspect of a cognitive endeavor, as its object. In investigating internal state words, however, we have been considering words not just relating to cognition, but also about other internal states and processes--words about emotions, perceptual processes and experiences, choices, intentions and desires. Therefore we will use the term metacognition for knowledge and awareness not only of cognition in the narrow sense, but of internal states and processes in general. The related terms metacognitive experience and metacognitive knowledge can be assigned modified senses in parallel fashion.[17]

The concept of metacognition (in the extended sense just defined) relates to internal state word use in the following ways:

First, every semantic use of an internal state word is an instance of metacognition. A semantic use of an internal state word is one that is used to communicate about an internal state. Communication about an internal state is of course cognition that has an internal state as its object. It is also true that every communication of metacognition that crucially involves an internal state word will be a semantic use of that internal state word.

The concept metacognitive experience will provide the basis for our next category in the use of internal state words. In the definition already cited, Flavell describes metacognitive experiences as "conscious cognitive or affective experiences which occur during the enterprise (that is, some cognitive enterprise) and concern any aspect of it." That is, a metacognitive experience is consciousness of some aspect of a cognitive enterprise during that enterprise. In the modified sense of metacognitive we have adopted, this means any awareness of one's own current internal state.

We will use the term reflection to refer to communication about metacognitive experiences; that is, the use of internal state words to express or elicit awareness of someone's own current internal state.

Identifying Reflections

If communication about metacognitive experiences were to represent the internal structure of the experience explicitly, it would take the

form of a predicate of awareness (hence, from the Cognitive subcategory) which had another internal state word of any category in its complement, the latter internal state word having the same (underlying) subject. This form is illustrated by sentences such as the following:

(105) I'm sure that I'm not angry.
I realize that I don't intend to go through with it.
I'm aware of my attitude towards him.
I'm conscious of the fact that I smell smoke.

Such sentences would be easy to identify as reflections, as we have defined them, but sentences of this form are extremely rare in everyday usage. None, for example, have turned up in that segment of the Hall (1978) corpus which has already been subject to detailed analyses with respect to these categories.

One reason for the infrequency of such sentences is fairly straightforward: When a person says something like:

(106) I don't understand this problem.

the awareness of the understanding or lack of it is implicit. The fact that the person utters such a sentence is in any normal context quite sufficient proof that the person is aware of his/her lack of understanding. One could express this awareness explicitly, as in:

(107) I realize that I don't understand this problem.

But the I realize here is largely redundant; it would probably be uttered only in context where contrastive stress on realize would be appropriate. (This would be the case, for example, if the focus of emphasis was on the person's realization itself, and not on the lack of understanding.) But

even without the I realize, the sentence clearly indicates awareness of the speaker's own current internal state, and hence is a reflection.

Note that the implication of awareness--from I know the answer to I am aware that I know the answer--works in the first person, but not in the third. The sentence:

(108) John doesn't understand this problem.

implies no awareness on John's part: one can infer the degree of John's understanding from purely external criteria. (This sentence does imply that the speaker is aware of John's degree of understanding--but this does not constitute a reflection, since we have defined reflections as utterances which convey a person's awareness of his/her own current internal state.)

In the second person there is a slightly different situation. Obviously, a speaker's assertion about someone else's internal state does not constitute a reflection on his/her part. But we can consider to what degree utterances by the speaker might require or elicit meta-cognitive experiences on the part of the addressee.

Questions seem to be the most clear-cut case. To understand and answer questions such as the following, the addressee has to be aware of his/her current internal state:

(109) Are you happy about how things turned out?
How do you feel?
Do you really want to go, or are you just saying that?

Thus, although such utterances do not express a metacognitive experience, they do request one of the addressee. For this reason, we include questions about the addressee's internal states in the category of reflections, that is, communication directly involving a person's awareness of his/her own current internal state.

Slightly less clear is the case of requests and commands about the addressee's internal states, such as the following:

(110) Think about that for a while.
Decide whether or not you're going to come to the party.
Try and remember where he said he was going.

It might be argued that the addressee must become aware of his/her own internal state to properly understand and respond to such a command or request. But, admitting that the boundaries are unclear, we would consider the implication of awareness on the part of the addressee less direct than in the case of questions discussed above, and therefore suggest excluding commands and requests relative to the addressee's internal state from the category of reflections. In any case, the impact of the decision is relatively small, since such commands and requests are rare in natural conversation.

The case of assertions about the addressee's internal states is similar:

(111) You know the answer to most of these questions.
You aren't as angry as you were five minutes ago.

One could argue that hearing and understanding such a sentence would more or less automatically result in a metacognitive experience on the part of the addressee. Again, this may be the case, but we find the implication of awareness less direct here than in the case of questions about the addressee's internal states, and will therefore exclude assertions about the addressee's internal states from the category of reflections.

Specific criteria for identifying reflections, with examples. To recap, we have defined reflections as communication involving semantic usages of internal state words that relate directly to a person's awareness of his/her own current internal state. We have further specified what it means for communication to "relate directly" to awareness of internal states by limiting reflections to assertions about the speaker's internal state and questions about the addressee's internal state.

Our criteria for reflections are fairly simple to apply; it is generally no problem to determine whether a sentence is a question or an assertion,[18] and whose internal state is being referred to. One must remember, however, not to approach the question "whose internal state?" in purely syntactic terms. Most assertions about the speaker's internal state do have "I" as their subject:

(112) I'm getting very annoyed
I don't want to think about that, okay?
I don't understand.

But this will not always be the case, as for example, in:

(113) My head is spinning.
This hurts me in here.
The pain is all the way up to here.

Similarly, questions about the addressee's internal state will normally, but not always, be in the second person:

(114) Do you understand him?
Are you sure?
Does it hurt?

This criterion will also include assertions and questions about internal states in the first person plural such as the following:

(115) We're thinking about it right now.
What are we so angry about?

This criterion automatically excludes any assertions or questions about any third person or person's internal states, such as:

(116) She didn't know until yesterday.
He thinks it's good for him.
Graeme doesn't know about your wonderful arrowhead.

It also excludes assertions about the addressee's internal states;

(117) You're not supposed to eat like that and you know it.
By the time you eat you'll feel better.

Questions abut the speaker's internal state, though, should probably be included, since they would seem to indicate reflection:

(118) What am I thinking about?

Our criteria include in the class of reflections references only to the speaker's or addressee's <u>current</u> internal state. This time restriction is an attempt to capture what may be a significant property of

prototypical metacognitive experiences, for example, becoming aware that one does or does not understand a problem. In this kind of situation, one's awareness of one's internal state is direct. One's awareness of one's past internal states, on the other hand, is indirect by comparison, and thus is to some extent more like one's awareness of the internal states of others. (It is an interesting, and perhaps even empirical question, whether one's knowledge of one's past internal states is more like one's knowledge of one's current internal state or one's knowledge of others' internal states.)

The restriction to current internal states will first of all rule out references to past internal states, as in sentences such as the following:

(119) I was mad.
I got sick in my stomach.
Then I felt more relaxed.

The distinction between past and present tense is pretty easy to identify, so this distinction, if it is the one we want to make, should not be hard to find even in naturalistic data. There is, however, a somewhat plausible argument that the use of past tense does not rule out reference to a current internal state. The argument involves sentences such as the following:

(120) It just occurred to me that . . .

(121) a. Did you hear it?
b. I heard! You're hiding under your dresser.

In the case of (120), it is not clear which is more accurate--to say that the sentence is about a recent change in awareness or about a current state of awareness. In the case of (121), certain perceptual events like hearing a sound are often so short that it is unusual to talk about them while they are occurring; hence, any reference to such an experience will be in the past tense, and yet the person's awareness of the perceptual event seems to be quite direct and immediate.

If the argument is valid, one will not be able to rely just on tense to determine what counts as a sentence about a current internal state.

Taking the restriction to communication about <u>current</u> internal states strictly will also mean excluding sentences about the speaker's and addressee's future or potential internal states, as in the following examples:

(122) a. We'll figure it out Saturday, okay? Not now.
b. Go ahead, I'll watch it for you.
c. Where was it? We should really think.
d. Let's see if we can remember it.
e. You're going to have a mess over there and I'm going to get upset.
f. I hear another fresh word coming from you and you will not come out of your room again tonight.

In general, use of auxiliaries or auxiliary-like verbs will mean that the reference is to a potential rather than actual internal state.[19]

(123) I will think about it.
I'm going to think about it.
I can think about it.
I should think about it.
I might think about it.
I may think about it.

I'm about to think about it.
I have to think about it.
I must think about it.
I ought to think about it.
Etc.

The focus restriction. Awareness is a criterial feature of metacognitive experience. The awareness is further specified as being awareness of some internal state, or, in the broader sense of metacognitive experience, of some aspect of metacognitive knowledge or some cognitive enterprise. We have assumed up to now that a speaker is aware of an internal state if he/she utters a sentence containing a sematic token of an internal state word referring to that internal state.

While this in general seems to be a very reasonable criterion for awareness, and most likely the only workable one to adopt when trying to infer awareness from transcripts of conversation, there are certain cases where it does not seem to be restricted enough. We are thinking specifically of cases such as the following:

(124) Grandma used to grow corn when I was growing up . . .
I remember the corn and potatoes . . . and
lots of tomatoes, but she never grew greens.

In this sentence, the word remember is used semantically. But, while it is clear that the speaker is well aware of what Grandma grew in her garden, it is not as clear that the speaker can be said to be aware of the act of remembering in and of itself. In other words, it is not clear that the above sentence can be considered to be an expression of

a metacognitive experience. Rather, it seems dubious to call this an example of a person reflecting on his/her own internal state.

It might be argued that the same holds for sentences such as the following:

(125) But I felt we wouldn't have enough potatoes.
I thought the place was flooded.
I don't know which bakery.
I even know how to catch them.

In trying to determine whether the person uttering such sentences was really conscious of his/her internal state, it seems relevant to ask where the "focus of emphasis" in the sentence lies; that is, is the sentence more about the internal state referred to by the internal state word, or about its content?

For example, in a sentence such as:

(126) I BELIEVE VERY STRONGLY that John will win the election,

it seems reasonable to say that the speaker's internal state is central to the meaning of the sentence, and that the sentence can therefore be taken as evidence that the speaker is aware of this internal state. On the other hand, in a sentence such as:

(127) I hope ERNIE wins the election, and not FRANK,

it seems safer to say that the speaker's internal state of <u>hope</u> is less central to the meaning of the sentence than the content of its complement (who wins the election). Therefore, such a sentence would not be counted as a reflection.

Therefore, in cases in which internal state words are verbs with direct objects, either noun phrases or complement sentences, one must ask whether the focus of the sentence is on the internal state word or on its object.[20] In sentences such as (124) or (127) above, the emphasis is on the object of the internal state word, and not on the internal state word itself. Such sentences, although they do concern the internal state of the speaker, do not seem to constitute evidence that the speaker is actually aware of that internal state.

Since an internal state word with a direct object should only be considered a reflection if the focus or emphasis of the sentence lies more on the internal state word than on its object, we will need some more precise notion of what it means to say that the focus or emphasis of a sentence is on some word or constituent. The linguistic distinction sometimes labeled "focus vs. presupposition" seems to give satisfactory results when applied to our data, as we will now show.

Specific criteria for determining focus. The content of the focus/presupposition distinction is usually described in terms of new vs. given information.

These terms may be unclear or misleading. Chafe (1976) sees the distinction in terms of consciousness; that is, "given" means roughly "what the speaker can assume that the addressee is already thinking about or is currently aware of." (He suggests as alternatives " newly activated" vs. "already activated.")

Givenness and newness are normally determined by the content of recent discourse; thus, the distinction is often illustrated in terms of question-answer pairs such as the following (in which new information is underlined in the answers):

(128) Q: Where did John stack the furniture?
A: He stacked it on the back porch.

(129) Q What did John do with the furniture?
A: He stacked it on the back porch.

(130) Q: What did John do?
A: He stacked the furniture on the back porch.

(131) Q: Why does it look so empty in here?
A: John stacked the furniture on the back porch.

Several things can be pointed out here. First, new information can include as much as the whole sentence, and apparently may consist of material that does not constitute a constituent of the sentence at either the deep or surface level. Secondly, given information is often, but not necessarily, pronominalized. (This does not mean, though, as we will see shortly, that pronouns cannot be new information.)

It might well be argued that "new information" is not identical to the intuitive concept of "focus of emphasis" we have been trying to make explicit. This may be the case, but this does not prevent us from using the concept of new information, since the following implication is very likely to be true: If the new information in a sentence consists entirely of an internal state word, then that internal state word is in fact the focus of emphasis of that sentence. Thus we have defined a sufficient,

if not necessary, condition for saying that an internal state word is the focus of emphasis of a sentence, and in fact one that can be related in fairly straightforward ways to the syntax, intonation, and context of a sentence.

There are two types of criteria for determining the focus of a sentence. The first has to do with the fact that what is new information and what is given is often clear from the context. Consider the two following sequences, taken from actual conversations in our data:

(132) a. I mushed it.
b. I don't want it mushed.

(133) a. Puzzles are for doing over and over again.
b. But I don't want to do them over and over again.

If the second sentence of each pair were taken in isolation, the stress could fall in several places; for example, on mushed in the first sentence, or on over and over again in the second. But in context, it is pretty clear that these phrases are given rather than new, and that the focal stress in each case is probably on the word want.

Thus, these are examples of cases where the context allows us to determine with a fairly high degree of certainty that the focus of emphasis is in fact on the internal state word.

Another way of determining focus has to do with pronominalization and ellipsis. While it is possible for a pronoun to be new information, it is normally the case--that is, unless there are special intonational markers--that pronouns are given rather than new information, and relatively

unstressed. Anything elided is necessarily given; therefore, if the object of an internal state word is not overtly present, or consists only of a pronoun, we can safely assume (unless there is contrastive stress on that pronoun) that the internal state word is part of the focus of that sentence. This is the case in the following examples:

(134) I don't understand
I don't remember.
I don't want to.
I know that.
I know it!
I can't see.
Do you understand him?
Are you sure?
I don't like it.
You went to bed at one o'clock this morning? I believe you, too.

Intonation provides the most direct evidence for the given/new distinction. New information is generally pronounced with higher pitch and greater stress, and with minor qualifications,[21] it could be said that the intonation peak or focal stress of the sentence always falls on new information; conversely, given information is pronounced with less stress and lower pitch.

As mentioned above, the fact that an internal state word is part of the new information in a sentence does not constitute sufficient grounds for considering it to be the focus of emphasis of that sentence. After all, there are cases where an entire sentence consists of new information; yet it would be strange to say that the entire sentence would in that case constitute the focus of emphasis for that sentence. However, it does seem

reasonable to assume that in most, if not all cases, the focus of emphasis in a sentence will be that part of the sentence upon which the focal stress falls. Therefore, if the focal stress in the sentence falls on the internal state word, there is little question that the internal state word is the focal point of the sentence.

Working from written transcripts, it is not possible to determine the point of focal stress with perfect accuracy; however, taking context and the syntactic structure of the sentence into account, it is possible to make an accurate estimate in most cases. In addition, transcriptions could be made to indicate stress patterns when they do deviate from the unmarked or normal intonation.

Focal stress on a semantic internal state word with a direct object is therefore a sufficient condition for considering it a reflection; the focal stress guarantees that the speaker is aware of the internal state itself, and not just its object.

Focal stress on the internal state word is not a necessary condition, however: There seem to be at least two other factors that would count as evidence that the speaker is aware of the internal state itself (and not just its object), even when the focal stress is on some part of the object.

The first factor is modification. Consider the following two sentences:

(135) a. I hope that Frank wins the election instead of Bob.
b. I hope very much that Frank wins the election instead of Bob.

In both cases, the contrast between Frank and Bob puts the focal stress of the sentence within the complement rather than on the word hope. However, in the second sentence, the modifier very much makes it intuitively clear that some of the speaker's attention, regardless of the position of focal stress, is on the internal state.

A related factor has to do with the lexical identify of the internal state word involved. Some words incorporate the equivalent of modification into their internal semantic structure (cf. Dixon, 1971). For example, words such as know or think might be considered basic or unmarked in comparison to words such as hypothesize, ascertain, or presume. Thus, regardless of the position of stress, the following two sentences have different degrees of emphasis on the internal state words:

(136) a. I think John has already left.
b. I presume that John has already left.

Thus, the use of any of the more "marked" internal state words would in itself constitute sufficient evidence that the speaker was aware of the internal state being referred to, and not just its object.

To sum up, in trying to identify a subset of semantic internal state word usages that involve communication about metacognitive experiences, we have defined the class of reflections as those utterances containing semantic tokens of internal state words which are assertions about the speaker's current internal state, or questions about the addressee's internal state.

To make sure that we label as reflections only utterances which relate directly to metacognitive experiences, we have further limited the definition

by specifying that if the internal state word has a direct object, the utterance counts as a reflection only if the focus of the sentence is on the internal state word rather than its object, or if lexical or semantic factors indicate some emphasis on the internal state word.

If this definition of reflection is faulty, it probably errs in the direction of being too restrictive, and could be corrected by relaxing some of the restrictions discussed above.

SUMMARY

This paper has outlined an approach to the study of internal state words. First, we have explored some of the theoretical problems and issues associated with defining this class, determining its boundaries, and breaking it down into the four major subclasses: Cognitive, Perceptual, Affective, and Intentions and Desires. We have found the primary problems in this area to be: (1) lexical ambiguity and (2) determining whether an internal state component in a complex word meaning is the central component of that meaning.

Secondly, we have outlined two important dimensions for categorizing usage. The Semantic/Pragmatic distinction relates to whether the lexical meaning of an internal state word contributes directly, indirectly, or not at all, to the intended meaning of the utterance in which it occurs. At one extreme there are perfectly literal usages, e.g., John knows the answer. At the other extreme are almost meaningless conversational devices and

mannerisms, such as the phrase ya know. In between there are a variety of types of usage in which the contribution of the internal state word to the meaning of the utterance is diminished or made indirect by various conversational implicatures and conventions. Among these are indirect requests and suggestions, such as Do you want to take out the garbage, please, and hedges such as He's in his office, I think.

The category of reflections contains those uses of internal state words which express awareness on the speaker's part of his/her own current internal state, or explicitly call for such awareness on the part of the addressee. To define this class, we have had to establish criteria for determining when an utterance containing an internal state word could in fact be taken as an indication of awareness on the part of the speaker (or an explicit attempt to elicit awareness from the addressee) on his/her own current internal state. Surface grammatical categories such as first and second person and present vs. past tense are helpful in determining the status of internal state words with respect to these categories, but not sufficient in themselves; the categorization is ultimately based on semantic factors including reference and context.

Semantic uses of internal state words are those uses of internal state words which communicate about, and hence constitute, metacognition. Reflections are expressions of, or explicit attempts to elicit, metacognitive experiences. These two categories of use, and also the category of internal state words and its four subclasses, constitute valuable tools for studying cognitive and conceptual skills that are clearly of significance to child development and education.

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Footnotes

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[1]Although we have chosen to use the term internal state words, we do not mean state in any narrow or restrictive sense: The term is intended to include words referring to internal states, processes, and any other sort of internal experiences.

[2]The concept of metacognition will be defined and discussed in the section on Reflections; see the references cited there.

[3]For example, in a rough count based on two dinners of a professional class family from the Hall (1978) corpus, slightly over 70% of the 400 internal state word tokens recorded were instances of eight common internal state words: know, remember, think, want, see, look, hear, and like (and inflectional variations such as knew, saw, thinks, etc.). If five more common words are included (guess, mean, watch, feel, and love), 80% of the internal state word tokens are accounted for.

[4]Since almost all words have several meanings, the context will always be an important factor in determining whether or not a given word

is in fact an instance of an internal state word. However, there are significant discrepancies between what meaning a given word has in a context and what the sentence containing that word is about. One cannot, therefore, use the following strategy in using context to identify internal state words, as plausible as it may seem: "A sentence contains an internal state word if and only if that sentence is about internal states or processes."

The types of discrepancies that make such a generalization invalid are discussed in detail later in this paper, where we investigate the use of internal state words. To give a single example for now, take the use of *see* as a conversational mannerism (parallel to the *know* of *you know*), as in *You see, I was late for work and there wasn't much traffic*. While this might be called in "empty" use of *see*, one can still ask which *see* it is an "empty" use of--is it *see* = "perceive visually," *see* = "visit," or *see* = "understand?" We consider this to be a meaningful question, and would suggest that a sentence like *You understand, I was late for work and there wasn't much traffic* gives good evidence for making a choice.

[5]The entire discussion of problems associated with categorizing word meanings owes much to Nida, Louw, & Smith (1977), Louw, Nida, & Smith (Note 1), and to conversations with the authors.

[6]The noun *memory*, for example, (as in *I have a good memory*) is not an internal state word, since it refers primarily to a capacity rather than to a state or process. In the same way, we would probably want to

exclude words like reason and motivation, although the exact dividing line between internal states and non-internal states becomes unclear. In a sentence like That must have been his reason for doing it, one is not referring to internal states as such. (On the other hand, in the case of the superficially similar sentence His intention was to keep his parents from worrying, one might paraphrase his intention by what he intended, which seems to refer to internal states.)

[7]It may not be possible even in principle to determine which component of a word-meaning is central or focal in some absolute sense, because which component is central may depend on context. One example of such a case is the word hope.

The word hope is often defined in terms of the two components "expectation" and "desire." (It so happens that both of these components fall into the category of internal states, so that no matter which one is focal, hope will be an internal state word. What is in question is whether it should be classed as a member of the subcategory Cognitive, or Intentions and Desires. One can easily imagine there to be analogous cases, though, where one of the two components would not be in the category of internal states at all.)

In a sentence such as (a), the component focused on in the first half, and negated in the second, is "desire."

(a) John hopes Sue will come to the party, but I don't.

But in a sentence like (b), the focused component, which is also negated, is "expectation."

(b) We can't really hope for much progress in the next few weeks.

Thus we have a case where it is not possible to determine independent of context which component of meaning in a given word is focal. This is problematic in that it would be simpler, in categorizing meanings according to their focal components, to be able to identify the focal components independently of context. In practice, though, it is possible to deal with the problem posed by hope by modifying the restriction about focal components slightly: Internal state words will include those words for which the internal state component(s) of the meaning can be the focal component of the meaning in some natural context.

[8] In determining what is an internal state word and what is not, an important factor is what the meaning of the word as a whole is about. As has been pointed out, blind and deaf are not internal state words, although they contain the internal state components see and hear, because they are about abilities or capacities, rather than internal states or processes. However, it is dubious whether determining "what the meaning of the word as a whole is about" can be sharpened into a definite criterion.

For example, problems arise when one tries to apply this as a criterion to words containing a component of negation. Someone might argue, for example, that overlook (= fail to see or notice) is not an internal

state word since, strictly speaking, the absence of some internal state or process does not constitute an internal state or process. We feel, though, that words like overlook, unaware, and ignore should be considered internal state words.

[9]The convinced of I'm still convinced that he's innocent is of course an internal state word, and not the same word as the convinced in I was convinced by the evidence they presented; it is the latter whose status as an internal state word is in question. In general, it is necessary to distinguish between adjectives such as depressed, upset, annoyed (as in I have been depressed (upset, annoyed) all morning and the homophonous past participles of the related verbs depress, upset, and annoy (as in I have frequently been depressed (upset, annoyed) by incidents like this, but this time I won't let it bother me).

[10]For example, the existance of the phrase fool (someone) into thinking might be taken as evidence that the word fool itself focuses primarily on the activity resulting in the deception, rather than on the beliefs produced, since the word thinking expresses the latter explicitly. If fool meant cause to believe something false, then fool into thinking should be as redundant as kill to death, or frighten into being afraid.

However, natural languages do tolerate high degrees of redundancy in many areas, so the evidence provided by the phrase fool into thinking is interesting but not conclusive.

[11]There are of course contexts in which would like has its literal meaning, as in the case with any idiom. For example: I would like owning a big car, but I don't want to buy one. In such cases, would like will of course be classified as Affective.

[12]Wonder appears to have a complex meaning involving components which are not all Cognitive; but it seems best to class the meaning taken as a whole in the Cognitive category.

Know has at least three meanings that can be considered Cognitive, as in the three following examples:

(a) I know the answer.
(b) Do you know Mr. Smith?
(c) He knows how to swim.

It might be questioned whether the know in (c) is Cognitive, since He knows how to swim is very close in meaning to He can swim, and can, of course, is not an internal state word. However, a sentence such as (d) makes the Cognitive component of this meaning of know clear:

(d) He knows how to do 50 pushups.

The sentence is odd, because know how to does not mean sheer physical ability. Rather, (d) implies that there is some trick to doing 50 push-ups, that some people may know and others might not.

The word see has at least one cognitive meaning, as in:

(e) I want to see if I can add these up in my head.
I don't see how they can do it.

[13]Note that we have chosen to focus on the use of internal state words rather than on communication about internal states (which often, but not always, involves the use of internal state words). Communication about internal states does indeed constitute an interesting area for research, but there are several reasons why we have chosen to start with investigating the use of internal state words:

First, there are practical reasons for starting this way. Although we have listed less than 350 internal state words, and relatively few of these are frequently used in normal conversation, it has not been a trivial matter to give explicit criteria for identifying internal state words. The task of giving operational definitions for identifying sections of discourse which refer to internal states would undoubtedly be far more difficult.

In addition, although it is possible to communicate about internal states without using internal state words, the majority of communication about internal states does involve the use of these words.

Finally, one of our theoretical points of departure was the significance of internal state vocabulary to the development of metacognitive skills. To determine what significance internal state vocabulary has for the development of metacognitive skills, it is necessary to determine what words make up this vocabulary, and to investigate how they are used.

[14]The rhetorical questions that are of interest to us are (as far as their literal meanings are concerned) questions about the knowledge

of the addressee. The fact that they are about knowledge does not, however, mean that only words from the category Cognitive will be involved. In the following example, which could in some contexts serve as a rhetorical question, the perceptual word hear relates to the acquisition of knowledge:

(a) Did you ever hear about the animal that was in my bed?

Words from the category Intentions and Desires are also sometimes involved:

(b) Do you wanna know why?
Would you like to hear what it was?

It should also be noted that rhetorical questions are not necessarily limited to sentences that are questions in their surface syntactic form. Questions are requests for information, and a request conveyed by a question (e.g. How old are you?) can also be conveyed by an imperative (e.g. Tell me how old you are). Therefore, certain requests which are syntactically imperatives can be rhetorical as well, as in the following examples:

(c) Guess what. We have no milk.
And guess what--the woman had a cat . . .

[15]The hedges discussed in the text involve the use of words like think to convey uncertainty or doubt. Similar in function although not in form are phrases like I don't know used to convey uncertainty rather than literal lack of knowledge, as in:

(a) Well I don't know, they come from a bakery.

Similar to these are sentences such as the following:

(b) I don't know about you, but I'm going to go.
One never knows.
I don't know about that.
I don't know if he's going to like that idea.

The use of know in (a) is clearly pragmatic, and might even be better treated as a type of conversational mannerism. The examples in (b), like most other hedges, are unclear as to their exact status with respect to the semantic/pragmatic distinction.

[16] It must be kept in mind that the following discussion of the usage of think applies only to first person assertions. (A sentence like John thinks it's going to rain is clearly semantic.) In fact, with a few exceptions, it applies only to first person assertions in the present tense. First person assertions in the past tense generally convey information about the speaker's former beliefs and opinions, and thus are semantic, as in I thought no one was coming, so I left.

Exceptions seem to occur in the following sort of context: Imagine a discussion among three people in a room concerning when a fourth had said he would be back:

A: Didn't he say three o'clock?
B: It might have been two.
C: I thought he said four.

The third speaker could have said either I though he said four, or I think he said four. The difference between the two is not one of time, but one of degree of certainty or commitment to a particular belief. In cases like these, the past tense thought is at least as likely as the present tense to be pragmatic, since the emphasis seems to be on the uncertainty.

[17]This modification also involves a certain narrowing of the concept metacognition. As Flavell uses it, it includes cognition concerning aspects of a cognitive enterprise which in themselves may not constitute internal states, for example, awareness of strategies of problem solving or principles of logic. He gives the following as an example of a metacognitive experience: "Someone's duplicity reminds you of your long-standing maxim that one just never can tell about people" (Note 2, p. 8).

The modified concept of metacognitive experience we are using would not include such an experience, since it does not necessarily involve awareness of an internal state as such. But although our concept of metacognitive experience is modified slightly, it still includes those experiences which we consider to be prototypical metacognitive experiences, e.g., becoming aware that one does (or does not) understand how to solve a particular problem.

[18]The concept "assertion" gives us further syntactic criteria for limiting the class of reflections. We want to exclude from the category of reflections instances of internal state words referring to the speaker's (or addressee's) internal state which are presupposed rather than asserted. For example, know would be counted as a reflection in (a) below, but not in (b):

(a) I know him.

(b) You're the only child I know that complains about meat.

In the latter sentence know is in a relative clause, and hence is presupposed rather than asserted.

In general, occurrences of internal state words in subordinate clauses are not likely to constitute reflections even when they refer to the speaker's internal states. For example, know in the following example would not be counted as a reflection:

(c) Some people think I know the answer to that problem.

While it will serve as a good rule of thumb to only consider verbs in main clauses as potential reflections, there will certainly be some counterexamples to this generalization. One type of counterexample involves sentences which are used to assert what they seem (on the basis of their syntactic structure) only to presuppose. For example, in the following sentence, understand should probably be counted as a reflection:

(d) Of course you realize that I understand how you feel.

[19]It should be noted that sentences with not and can't are exceptions to this principle. For example, sentences like I can't see or I don't understand are about the speaker's current internal state, and should be classed as reflections.

[20]The location of emphasis in a sentence does not seem to have the same effect on internal state words without direct objects. For example, in the case of the following sentence, the word angry is not stressed, and yet the sentence uncoubtedly constitutes a reflection.

(a) Maybe no one else is angry, but I sure am.

The following discussion of emphasis and focus therefore applies only to internal state words with overt direct objects (either noun phrases or clauses).

[21]One qualification has to do with sentences such as (a):

(a) JOHN stole the car.

Chafe (1976) would labe. this as <u>contrast</u>, and treat it as different from the given/new distinction. Others, for example Clark and Clark (1977), would consider this to be another manifestation of the given/new distinction. For our purposes, it seems best to take the latter position; in which case the relationship between focal stress and new information remains more simple, the focal stress always falling within the new information in the sentence.

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